97-84032-21

Smith, George Otis

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Washington, D.C.

1920

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Smith, George Otis, 1871-

The 1920 soft coal shortage; underlying reasons for it and how it was overcome. Letter of George Otis Smith ... Washington, D. C., The National coal association [1920]

cover-title, 15 p. 22½cm.

Folded colored diagram laid in.

1. Coal mines and mining—U. S. 2. Coal—U. S.—Transportation.

22-7909

TECHNICAL MICROFORM DATA

FILM SIZE: 35mm REDUCTION RATIO: 10:1 IMAGE PLACEMENT: IA IIA IB IIB

DATE FILMED: 2-28-97 INITIALS: MS

TRACKING # : MSH 22268

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The 1920 Soft Coal Shortage

Underlying Reasons for It And How It Was Overcome

LETTER *of* GEORGE OTIS SMITH

Director of the United States Geological Survey, to Senator Walter E. Edge, of the United States Senate Committee on Reconstruction and Production, in which the Writer analyzes the Recent Bituminous Emergency, and tells what the Operators, in conjunction with the Railroads and the Interstate Commerce Commission did to save the Nation from threatened disaster.

THE NATIONAL COAL ASSOCIATION
Washington, D. C.

THE "MOST ACUTE CAR SHORTAGE IN HISTORY" RESPONSIBLE FOR THE SOFT COAL EMERGENCY.

—Director George Otis Smith, in his letter to Senator Walter E. Edge.

VIEWS on the coal situation, expressed by George Otis Smith, who has been head of the United States Geological Survey for more than thirteen years, have the weight of authority as well as the impress of impartiality.

Born in Maine in 1871, and educated at Colby College, where he received a master's degree, and later at Johns Hopkins University where the degree of Ph. D. was conferred upon him, Mr. Smith first identified himself with the practical field work of his profession in 1893. His intimate study of the geology of various states in the West, Northwest and New England, led to his employment by the United States Geological Survey in 1896. In 1907 he had reached the highest post in this branch of the Government service.

Mr. Smith is the author of reports on areal, economic, petrographic and physiographic geology in publications of the United States Geological Survey. He is a fellow of the Geological Society of America, as well as the American Association for the Advancement of Science, and is a member of a number of other distinguished organizations, including the American Institute of Mining Engineers' and the Mining and Metallurgical Society of America.

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

Office of the Director.

December 13, 1920.

HON. WALTER E. EDGE,
United States Senate.

MY DEAR SENATOR EDGE:

The letter of your Secretary, asking my views on the present situation in the coal industry and the reasons, if any, for the prevailing shortage and high prices, had been received in my absence. The letter raises many questions pertinent indeed to the problems of the consumer who has had to pay high prices for his coal, but somewhat outside the province of the Geological Survey. Those of us in the Survey who have been watching coal have a certain detached point of view, disinterested and I hope impartial also. Our concern has been primarily with the resources, and from that point of departure we have for forty years been collecting statistics of production of coal and, more recently, of the distribution and consumption of coal. We have been forced to take a long-time view of the industry and to consider this year's developments in relation to those of past decades, so while I feel myself quite unable to advise you concerning the details of costs, prices, and margins, I may perhaps be able to sketch the broader outlines of the situation which had prevailed during the last two years, outlines which now seem to me fairly clear—for there are certain fundamental facts against which the present condition of the coal trade must be viewed as a background, if it is to be seen clearly.

In this array of the facts pertinent to this discussion, which is longer than you may desire, and indeed in the statement of opinions as well, I am indebted to Mr. F. G. Tryon, the geologist in charge of the Survey's coal statistical inquiries; but as a result of frequent discussion of the coal problems in the past 18 months, Mr. Tryon and I are in full agreement as to what are the facts and what are the deductions therefrom.

At the outset a sharp distinction must be made between the anthracite and the bituminous industries. Though both types of coal are used for domestic purposes—in 1917 about 53,000,000 net tons of anthracite, and 57,000,000 tons of bituminous—the industries producing them differ so radically in organization, and the industrial demand for them is so unequal, they must be considered separately.

The present letter will therefore be confined to bituminous coal and anthracite will be made the subject of a subsequent letter.

THE NATURE OF COAL PRICES.

In studying the bituminous coal prices there are two facts of fundamental importance which must be kept in mind. The first is that coal is a necessary of life, and that the demand for it is highly inelastic. For not only is coal a necessary, but it is one for which substitution on a large scale is impossible. We simply cannot cut fire-wood enough to make a dent in the nation's fuel budget. Even the much heralded competition of fuel oil, we now see, has had an insignificant effect on the demand for coal, simply because to replace any large amount of coal would require so much oil as to force up the price of oil to a point where there would be no advantage in the substitution. Rather than go without coal people will pay double or quadruple the price of ordinary times. On the other hand, if you were to cut the price in half and sell at less than the cost of production, you could not dispose of more coal, except as people might take advantage of the low prices to add to their stocks. This is the first point to remember. The second is that this rigid and unyielding demand is in times of shortage concentrated upon a limited part of the total output, namely, that portion available for spot delivery known as "free coal." At any one time the bulk of the coal shipped is under contract and only a fraction of it is available to meet the spot demand. Nobody knows just what part of the whole the spot sales ordinarily constitute, but over the country as a whole they seldom exceed one-fourth of the total. Now in times of shortage this margin between the total production and the contract coal, which is free to satisfy the spot demand is greatly restricted. At the same time the number of consumers desiring to purchase spot coal increases, for the very fact of the shortage usually means curtailment of production, and the operators are therefore unable to meet the quotas called for by their contracts. The consumer who fancies himself protected by his contract may find suddenly that to supplement his dwindling receipts he must enter the spot market. This brings about a condition in which the rigid and unyielding demand for coal, sharpened and pointed by scarcity, is concentrated upon a narrow margin of free coal. When that happens the price is likely to rise in spectacular fashion.

Demand for Coal Inelastic.

Spot Contract.

The effect of these two fundamental principles, the inelasticity of the demand for coal and the contraction of spot tonnage in times of shortage, bring it about that even a slight mal-adjustment between supply and requirements may cause a very great increase in spot price. In essence, as we shall see, this is what has happened in the year 1920.

With these principles in mind it will be in order to review briefly the facts which led up to the season of 1920 with its high prices and complaints of shortage.

CAUSE OF THE SHORTAGE OF 1920.

On the day of the armistice the quantity of coal in storage was about 63,000,000 tons, the greatest in the history of the country. In building up so large a reserve the Fuel Administration wanted to prevent a recurrence of the suffering of the preceding winter and foresaw a progressive diminution in the rate of production as the selective draft made further inroads on the working force at the mines. Under the conditions which prevailed after the armistice this reserve was greatly in excess of that actually needed.

The winter of 1918-19 proved exceptionally mild; there was a business reaction following the war; the demand for export had not yet set in in force, and in consequence of all these things the market for coal fell off. When the Fuel Administration withdrew its maximum prices on February 1, 1919, consumers waited to see which way the market would go. In some districts, like the smokeless fields of Southern West Virginia, where the price fixed by the Fuel Administration, based on the cost of production, had ignored the premium usually brought by these high class coals, the price rose when the restraint was removed. In other districts notably the Middle West, the price declined materially. The consumers, however, were not satisfied with the prices offered, even though they were trending downward. The consumers remembered the days of cheap coal before the war. They recalled that as late as 1915 the average mine realization on all bituminous coal was only $1.13. There was no one to tell them that the increased cost of materials and the successive wage advances of April, 1916, April, 1917, and October, 1917, had so increased the price of coal that a return to pre-war prices was impossible. There were no accurate data then being secured by the Government on the cost of production. Had the cost figures been available, as they were during the war period, the buying public would have known that the prices then charged —in the Middle West particularly—were down to a minimum and likely to increase with the return of cold weather. Instead of taking advantage of the low prices to maintain unimpaired their reserves against the following winter, consumers held off and waited for the price to drop. Nor was advice from high places wanting to confirm them in this conviction. The result was that

"Buyers' Strike" of 1919.

during the second quarter of 1919 the mines of the country worked on the average less than 55 percent. of full time, or in other words, about 26 hours out of 48 in their week. In some districts the effect of no market was much greater. Thus in the State of Illinois, during the months of April, May and June, 1919, the average opportunity to work offered to the miners by the operation of mines was 19 hours out of the week, or less than two and one-half days. The condition of the discontent produced by the depression of the industry at this time was the underlying cause of the great strike of 1919. Men who during the war had grown accustomed to fairly steady work at the existing wage scale, found that scale inadequate when they could get work at best for only three days a week, and sometimes could get no work at all. Out in Southern Illinois, where the depression was severest, the strike was born, and it grew directly out of the "buyers' strike," as someone had aptly termed the reluctance of the purchaser to take his coal in customary amounts.

Genesis of the Coal Strike.

Not until August, 1919, did the consumer awaken to his interest. The market then began to improve and coal to move. After the United Mine Workers announced their demand for a 30-hour week, and an increase of 60 per cent in wages, it quickened again. And the recovery changed into a mad scramble as it became evident that the efforts to peaceably adjudicate the controversy between operators and men were unavailing. With preferential car supply furnished by the Railroad Administration, production during the last month before the strike broke was the largest in any October of record. These last-minute preparations on the part of consumers had increased materially the reserves on hand at destinations, but the stock was still short of that necessary to carry the country through a protracted industrial struggle.

Into the merits of that controversy I need not enter. Suffice it to say that for a period of from one to six weeks production ceased in fields representing about two thirds of the capacity of the country. The loss in terms of tonnage aprpoximated 26,000,000 tons. To meet the emergency the maximum prices of the war period were restored under the Lever Act, and the Fuel Administrator delegated to the Director-General of Railroads the power to receive and distribute for emergency use the coal loaded at mines which continued to work.

The Great Bituminous Strike.

Had the loss of tonnage been generally distributed over the country it would have been serious enough, but as a matter of fact, some districts were much harder hit than others. Operations in the Mississippi Valley ceased entirely, as they did in much of the Northern Appalachian region, including Ohio, Pennsylvania,

Maryland and Northern West Virginia, Thus the fields supplying the territory north of the Ohio and Potomac, and east of the Mississippi, in which is concentrated the bulk of the manufacturing business of the country, were peculiarly affected by the strike. Increased production in the non-union fields of the Middle and Southern Appalachian and the States of the far Southwest, could not make up for the shortage in the Middle West and Northwest. As the strike progressed the reserves in the latter areas were eaten down to the bone and during the last days before the settlement which sent the men back to work, reports of physical suffering and actual closing down of plants for lack of fuel began to be received.

Effect on Consumers' Stocks.

How did it happen, you will ask, that during the strike and the months immediately following, there was on the whole so little distress and so little complaint of shortage from the consumers? Because the production recovered swiftly after the strike, provided a mobile reserve on wheels which could be made available for emergency use, and which was still subject to allocation by the Central Coal Committee set up by the Railroad Administration. Because also exports were under control. But because most of all the spot price was held in check by the order of the Fuel Administration and the concentrated bidding of anxious consumers upon a narrow margin of spot tonnage thereby prevented.

THE YEAR 1920.

The year 1920 opened with production at a high rate. In fact, the output for January was the largest in any January of history. The weekly rate was sufficient to meet the current requirements in view of the limitations on exports, and to permit a slow accumulation of consumers' stocks. To those who, looking forward, attempted to foresee developments of 1920, it was clear that the coal industry had before it a considerable task. Business was active, the foreign demand feverish, and the requirements for week-to-week consumption therefore large. In addition, 1920 would have to produce enough coal to build up the depleted reserves, in some regions well nigh exhausted by the strike. This double duty of providing for current consumption and reaccumulating the necessary reserves made it apparent that the 1920 requirments would be large. There was no reason to expect that they would equal those of 1918 when in addition to meeting the wartime consumption, some 30,000,000 tons were put in storage. But it was very clear that they would exceed the production in 1919, when because first of the buyers' strike, and later because of

Deficit Inherited by 1920.

the miners' strike, the output fell far short of consumption. It seemed more reasonable to expect that the requirements for 1920 would be in the neighborhood of the 550,000,000 tons produced in 1917.

In the meantime the controversy between miners and operators was before the Bituminous Coal Commission. In the middle of March the Commission announced its decision, awarding a wage increase of approximately 27 percent. which included the 14 percent. previously granted by the Fuel Administrator. The operators who had undertaken to absorb the 14 percent. advance without an increase in the maximum prices, declared themselves unable to absorb the advance of 27 percent. and in order to make possible the necessary readjustment of prices the Government maxima were withdrawn, effective March 31. At the time this decision was announced the prospects for steady and large production appeared bright. Storms of unusual severity in February had resulted in a severe car shortage at the mines, but by the end of March the transportation system was again functioning about as usual, and in the last week of that month, just before the prices were lifted a production of 11,000,000 tons was attained, a fair performance for that season of the year.

Withdrawal of Maximum Prices.

The order lifting the prices had been issued on the 19th of March, to take effect at midnight, March 31. On April 1 occurred an unexpected event which was to affect profoundly the coal market. The miners' strike had been an internal quarrel within the industry. The outlaw switchmen's strike of April 1 was entirely beyond the control of the coal industry, but it curtailed production of coal far more severely than if the same number of miners had stopped working. The miners' strike of 1919 gave ample warning. The switchmen's strike broke without a sign of warning. The struggle which followed between the switchmen and the railroads resembled guerilla warfare more than an organized strike. It was sporadic, local, breaking out only to be settled and to break out somewhere else. After a week or so the papers practically ignored it, but to those who were watching traffic it was apparent that the switchmen's strike remained the dominating feature of the situation for the next ten weeks. Almost every important rail gateway and junction point from Kansas City and St. Louis, east to Philadelphia and New York, was affected. The effect on the production and distribution of coal was immediate and far-reaching. Your investigations have no doubt brought out the absolute dependence of the coal producer on transportation. Storage at the mine is impossible, practically speaking, and is of no advantage to the consumer, who wants coal in his bin, not in the mountains of West Virginia. A mine, therefore, runs only when cars are available.

The Switchmen's Strike.

No sooner were the rail gateways clogged with freight than delays in the placing of empty cars at the mines brought about the most acute car shortage in history. During the week of April 17 the working time at the mines averaged only 43 percent. of full time. Production fell to 8 or 9 million tons a week, and throughout the month of April and most of May the weekly rate of production was less than the current consumption plus the exports. At the same time coal already loaded into cars was held up and prevented from reaching the consumers. Consumers of coal were therefore compelled to draw upon their already depleted stocks, which had not yet recovered from the strain of the coal strike of the year before. The effect of the switchmen's strike was peculiarly disastrous because it was concentrated in that very area north of the Ohio and the Potomac and east of the Mississippi which had borne the brunt of the bituminous coal strike. A count of the consumers' stocks made by the Geological Survey in cooperation with the Bituminous Coal Commission showed that on June 1 commercial consumers had on hand only 20,000,000 tons, the lowest figure on record during the period over which our data concerning stocks extends.

The result was a condition of stress. Many consumers were actactually short of coal, and many others—particularly the public utilities—hard hit by the sharply increased price. The Interstate Commerce Commission, pressed to use its new power under the Transportation Act, finally declared that a condition of emergency existed and on the 20th day of May issued its Service Order No. 1, designed to overcome the congestion and expedite traffic. In my opinion that declaration of an emergency was justified by the facts. The Geological Survey in its weekly reports and other statements on the coal supply issued during that period scrupulously refrained from the use of the words, "shortage of coal," trusting that the facts concerning production and supply would speak for themselves. Now that the condition is a matter of history, so far as the bituminous market is concerned, it is perhaps permissible for me to interpret the data then presented. There were not lacking at that time those who denied the existence of a shortage, and predicted that the output during the remainder of the year would make good the defficiency. The fact that the deficiency has since then been largely made up does not alter the reality of the shortage which existed in the spring and summer.[1] It was not indeed as acute as the shortage of the winter of 1917-18: there were relatively few plants which actually shut down for lack of coal, but stocks were low and the consumers knew it. Deliveries on contracts were

Effect on Coal Supply.

Reality of the Shortage.

[1] Footnote on following page.

inadequate to meet the current requirements of many plants which were therefore forced to enter the spot market. Some unscrupulous operators took advantage of the situation by neglecting their contracts and applying on the spot market the limited tonnage they were able to load with the existing car supply. The maladjustment between supply and requirements was sufficiently great to bring about that very sky-rocketing of price which, I have pointed out earlier, is likely to occur when the rigid and unyielding demand for coal is concentrated on the narrow margin of free coal available in a time of scarcity. To make matters worse, an export demand of unheard-of intensity suddenly developed, and to the growing anxiety of domestic consumers was added the bitterness of Europe's need for coal.

The resulting situation may be likened to what happens after a great disaster resulting from an act of God. After a San Francisco earthquake the customary restraints of organized society break down. The lawless element is unchained. A condition of near-riot results, and to restore order the application of martial law is necessary. Consumers unable to obtain the coal they needed, and uncertain when the congestion of transportation caused by the switchmen's strike would end and permit the resumption of normal coal shipments, bid against one another, sometimes against themselves. Prices rose at the mines, on the jobber's market, at the retail dealers' yards. At the point of consumption they rose 100, 200, 300, 400, or even 500 percent. above the Fuel Administration prices. They bore in many instances no relation whatever to the cost of production.[2]

Effect on Prices

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[1] That a condition of shortage existed on June 1, 1920, is, I think, shown by the following statement of production:

Soft coal mined in 7 months ended:	Net Tons
May 31, 1916	299,000,000
May 31, 1917	315,000,000
May 31, 1918	322,000,000
May 31, 1919	261,000,000
May 31, 1920	268,000,000

You will note that the output in the seven months preceding June 1, 1920, was:

31,000,000 tons short of 1916
47,000,000 tons short of 1917
54,000,000 tons short of 1918
7,000,000 tons *ahead* of 1919

Now it means very little that 1920 was ahead of 1919, for in that year the stocks on hand were millions of tons above normal. Neither does it mean a great deal that 1920 was 54,000,000 tons behind 1918, for in that year 25,000,000 tons excess stock was being accumulated. But I think it very significant that 1920 was so far behind 1916 and 1917, for the combined export and domestic demand this season has been just about equal to the 1916-17 average.

[2] At this point it is necessary to call attention to the fact that only a portion of the tonnage of coal moving at the time was sold at these prices. The bulk of it remained as before, under contract at prices negotiated before the shortage was foreseen.

You have in the investigations conducted by your Committee first-hand knowledge of these extravagant prices, and I need bring to your attention no specific instances, as indeed, I have no information conerning them. The suggestion I wish to make is that the high prices were inherent in the situation. It attracted swarms of speculators, a flock of "snow-bird" jobbers and operators with no permanent capital, no past losses to recoup, and no sense of responsibility for the good name of the industry. Doubtless there were also many unscrupulous operators, jobbers, and retailers who deliberately took advantage of the situation to gouge the consumer, but for the most part the producers and dealers in coal were doing what any other class of American business men would have done. Many a jobber and retailer caught in the upward movement of prices lost money, and no individual could hope by abstaining from accepting the prices offered him by the consumers to materially check the upward movement of price. The question as to whether or not the men in the coal trade who accepted those large prices are culpable turns on the public's conception of the coal business. Were the production and distribution of coal regarded as a public utility, like the railroads, it would be within the accepted power of the public to control prices. But so long as we recognize the mining and distribution of coal as a private business, such regulation is neither possible under existing law, nor sanctioned by prevailing conceptions of the Government's relation to business.

Twice before in recent times such a condition of disorder and confusion—such as a San Francisco "earthquake"—has arisen in the coal industry. The first was the period beginning late in 1916 and extending to early 1918. The second was the period of the great bituminous strike of November, 1919. On both of these occasions the Government did, as it were, proclaim martial law, the first time after obtaining from Congress special emergency legislation in the shape of the Lever Act, the second time by a resort to this war emergency legislation after the war was over, in all but name.

In my opinion it is only by methods analogous to the proclamation of martial law that the rise in coal prices in times of scarcity can be prevented, for under our present notions of what is fair and reasonable in organization to control prices within the trade it is impossible for the producers and distributors to effectively hold them in check.

Throughout the period of high prices from April to November the dominant cause limiting output has been transportation. Weekly reports, received by the Geological Survey from operators representing more than half the tonnage in the country, show that except for occasional strikes, the thing that has prevented supplying coal desired by consumers has been lack of transportation.

Transportation the Limiting Factor.

Expressed in terms of the full time of these mines, the loss of working time attributable to transportation, week by week, ranged from 50 to 20 percent. Having determined that lack of transportation was the limiting factor throughout this period, we must bear in mind that the carriers were laboring under enormous difficulties over which they had no control. It was not their fault that the miners had struck, and to expect them to provide cars to make up overnight the 26,000,000 tons lost through that strike was to expect the impossible. Neither were they free to deal with the switchmen's strike. No settlement of the switchmen's strike could be effected until the Railroad Labor Board had announced its decision, a decision which was not rendered until midsummer. Moreover, in examining the figures of transportation loss reported by the mines, it must be remembered that the soft coal mines of the country are developed far in excess of any possible demand for their output. They have a present capacity of something like 800,000,000 tons a year when the most the country was ever able to absorb was 579,000,000 tons (in 1918). Thus as long as the demand was present as it was throughout this period, the mines continued to ask for cars up to the limit of their capacity, but had the cars been furnished for only a few weeks at the rate asked for, the deficit in stocks would have been filled, the market would have been broken, and instead of car shortage, the mines would have been reporting lack of orders as the cause limiting output.

The subsequent developments in the bituminous situation have no doubt been brought out at the hearings of your Committee. Thanks in part to the service orders issued by the Interstate Commerce Commission, in part to the joint efforts of the operators and the Committee of Railroad Executives, and very largely to the cooperation of labor, the production of coal has been steadily increased since the profound depression of last April and May.

Measures to Increase Production.

The month of October, 1919, will stand as one of the periods of heavy output of recent years. For six consecutive weeks the daily rate of production was well above the line of 12,000,000 tons a week. The production for the week ended December 4 promises to be 12,750,000 tons, a figure which has been exceeded but four times in the history of the country. The total output since January 1 now stands at 512,500,000 tons and suggests that by the close of the year production may reach 550,000,000 tons, the mark attained in 1917. How is it possible, you may ask, that with so large a total output for the year there was yet a time of shortage? The answer is that the output was not available when needed, and that the consumer had no assurance that it would be forthcoming. The cumulative effect of three unexpected occurrences, the bituminous coal strike, the storms of February, 1920, and the switchmen's strike—had cut into the normal output of coal by something like 40,000,000 tons. The constantly increasing production attained since that period has not yet sufficed to overcome entirely the deficit in stocks created by these three occurrences.

That the deficit is being overcome is shown by the declining prices reported from practically all districts. When prices will strike bottom depends more than anything else on the rate of output in the next few weeks. Granted no further interruptions, before many weeks are passed we shall have a condition of relative oversupply of soft coal, with many mines, especially in the Mississippi Valley, closed down for lack of orders.

The subject of anthracite and the other questions raised by your Secretary's inquiry will be taken up in a later communication.

Yours very cordially,

GEO. OTIS SMITH,
Director.

NOTE.—Since Mr. Smith's letter was written, the bituminous coal shortage has cleared up to such an extent that many mines have been forced to shut down for one or more days a week, through lack of market, while prices have dropped to extremely low levels in every field.

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